Original Articles.

MALIGNANT PUSTULE.[1]

BY W. S. JANNEY, M. D.

My remarks to-night will be on the clinical history of four cases of malignant pustule, which have come under my observation at various times during thirty years of practice.

The synonyms of malignant pustule, as given by various authors, are: Contagious carbuncle, malignant carbuncle, anthrax, and charbon; other names are used to designate the more diffused and general forms of the disease.

It is defined to be a specific contagious disease, communicated to man from disease of horned cattle, horses, sheep, and other herbivora, and known as splenic fever, and due to the presence in the system of the bacillus anthracis of Cohen, or bacteridium of Davaine. The local or external form of the affection, malignant pustule proper, is a carbunculous swelling having specific characters, attended with more or less intense surrounding inflammatory œdema; constitutional symptoms may be slight or severe, and the disease is often fatal.

The symptoms and course of malignant pustule vary greatly with the form of disease. Authors describe at least three distinct forms: —

First, malignant pustule or carbuncle proper, the form from which the names of charbon and anthrax are derived; usually it occurs as a primary lesion due to direct inoculation; the seat is either on the face, neck, hands, or arms, those parts most exposed to inoculation.

Second, malignant anthrax, œdema, without definite pustule, corresponds in the main with malignant pustule proper. The eyelids are the parts most frequently affected, but it may occur elsewere.

Third, internal anthrax; differs greatly from external, and may be general, having no special lêsion or accompanied by local affection; usually pulmonary or gastro-intestinal.

The cases that I wish to report to-night come under the form of malignant pustule proper.

Mr. H., residing in Hopewell township, Mercer County, N. J., a farmer, aged sixty; previous to the attack general health good. On the morning of September 20, 1866, Mr. H. noticed a small pimple on his right cheek, immediately over the infra-orbital foramen. During the day it was slightly painful, and during the night the apex became vesicular, with great itching and burning, which continued to increase until the following morning, when I first saw him. The face presented the following appearance: a small pustule, one eighth inch in diameter, situated as above stated, with a denuded apex of a dark-brown color, and an areola of one half an inch in diameter, of a dark red color, surrounding the base of the pustule, and not sensitive to touch; pulse 78, respiration 20, tongue slightly coated, and bowels constipated. During the day the temperature increased. Pulse in the evening 100, respiration 22. Side of face up to this time had become very much swollen, with red streaks extending to the neck; slightly delirious; tongue dry. Free crucial incisions were made in the pustule. Delirious through the night of the 21st. On the morning of the 23d respiration was 30, pulse 130, tongue brown and dry; the cheek was of dark gangrenous color, extending to the lower margin of lower jaw, and also backward, involving the parotid region and right ear, to near the posterior median line of the neck; dark-red streaks extending over the shoulder to the right arm; patient becoming rapidly comatose, and died at two P. M. on the 23d, being fifty-eight hours after first noticing pimple on his face. The inflammation and œdema did not extend over the median line of the face or back of the neck.

The second case that came under my care was: —

Mrs. R., residing at her country seat in the suburbs of this city, thirty-two years of age, married, the mother of three healthy children, and of previous good health. She noticed September 17, 1876, a small pimple on the right side of the face, one half inch below the lower lip, and slightly to the right of the median line. From her description of how it commenced, she informed me that her first intimation of anything being the matter was a persistent itching sensation, and on rubbing it she felt a small circumscribed induration, which was in the skin, and was not noticeable. She continued rubbing it to allay the itching; in a few hours she noticed a slight elevation of the skin, conical in form, and the size of an ordinary pin-head, which increased during the day. Slept well during the night, and on the following morning, the 18th, she noticed the papule had increased in size, and was vesicular, containing a dark-colored fluid. The itching continued, and on rubbing it she ruptured the vesicle, and from that time she had a burning, itching pain in the pustule. I saw Mrs. R. on the morning of the 18th of September; she was sitting in her room and did not consider herself sick; had slight headache; was nervous, and spoke of a premonition of impending sickness or calamity. She had an anxious expression; retraction of the eyelids, giving her a staring expression. Tongue slightly coated with a light yellow coat; temperature 99°, respiration normal, pulse 80; constipated, and urine scanty; on her face, half an inch below the right side of the lower lip, and half an inch to the right of the median line, was a pustule of the size of a split pea, with an indurated base half an inch in diameter, of a dark-red color. The apex of the pustule was denuded of cuticle, and of a dark-brown color, not sensitive to pressure; no lines or streaks of inflammation extending from the pustule; no œdema of face. On the evening of the 18th temperature was 100, pulse 110, respiration 22; tongue coated and dry; streaks or lines of a dark red color, extending from the right side of pustule in a line of the inferior maxilla, curving upwards towards the right ear; right half of lower lip swollen, and of a dark-red color, which, on pressure, imparted a nodulated condition; dark-red streaks extending from the lip, curving upwards to the integument over the malar process. The skin and underlying tissues between the base of the pustule and the indurated lip retained their normal color and consistence.

Complained of severe lancinating pain over right half of face and shoulder. Morning of the 19th, temperature 101½, pulse 124, respiration 24; tongue dry; sordes on teeth; the areola around the pustule not so red; no discharge from pustule; dry and dark in color. The lower right half of lip showing dark gangrenous patches; right half of upper lip swollen, of a dark purple color, hard and nodulated. The right half of the face,

[1] Read before the Philadelphia County Medical Society, April 9, 1884.

forehead, and right ear swollen, œdematous, and of a mahogany color. The right side of neck swollen, with red streaks extending to the shoulder and arm. Complains of lancinating pains in right arm, fore-arm, and hand; also of scalp.

I saw her again on the evening of the 19th, when all of the above symptoms were aggravated. The right half of the face and right half of forehead, scalp, neck, and arm presented the appearance of rapid extension of gangrene. The lower half of right lip completely gangrenous; upper lip also. The fauces, tonsils, and pharynx not affected; lancinating pains in right mammary region, abdomen, and lower extremities. There was no redness, œdema, or other indications of the disease extending to the mammary region, abdomen, or right lower extremity. Skin normal in color; the slightest touch of the integument over the right side of the thorax, thigh, and leg produced the most excruciating pain, and not upon the left; became comatose during the night of the 19th. On the morning of the 20th, gangrene had extended during the night to the shoulder and arm, as far as the elbow, and to the median line of the neck posteriorly; had stertorous breathing; temperature 108, respiration 30; died at twelve o'clock, seventy-two hours after she had first noticed the papule.

The third case:—

Mrs. H., residing in this city; was called to see her October 20, 1878; thirty years of age, and of previous good health; mother of five children. Found her dying. She had been under the treatment of another physician. The history of the case was obtained from her husband. Four days previous to her death she noticed a small papule on the right side of her chin; on the following night the lower lip began to swell, extending to the median line, and next day involving the right half of the upper lip and extending over the left side of the face; complained of lancinating pain over right side of face, head, and neck; was five months pregnant, aborted on the third day, became comatose on the night of the third day, and died on the morning of the fourth day. When I saw the case, the lower and upper right half of the lips were gangrenous; between the pustule and lower lip an area of healthy tissue intervened, similar to case second.

The fourth case occurred in this city:—

Mr. P., residing at 2140 Park Avenue, a wool merchant, aged twenty-four, and of previous good health, who had been in Colorado, purchasing wool, returned from Colorado, October, consulted me October 3, 1883, for a cough, the result of a cold. On examination I observed on the face, one inch below the right half of the lower lip, near the median line, a small papule, not larger than a small pea, with an areola half an inch in diameter, of a pale pink color. I directed his attention to it, and he remarked that it was nothing but an ordinary pimple. My experience with the cases reported led me to suspect that it might be the beginning of a malignant pustule. As he had been handling wool in Colorado I stated my suspicions, and asked him to call next morning, incised the papule, and applied a fly-blister. He attended to his usual business on the 3d of October, and called at my office on the morning of the 4th. The papule had not increased in size. The areola was of a much darker color, but not increased in area. I removed the vesicated skin from the papule, and applied another blister. Had headache, temperature 99, and respiration 20. I felt almost convinced that I had to encounter another case of this dreadful disease. By much persuasion he permitted me to incise the pustule freely; was requested to go home, and told that I would see him in the evening.

On the evening of the 4th temperature 100°, pulse 95, respiration 20; no perceptible change in the pustule; red lines extending outward from left side of pustule, curving upwards over the face; lower right half of lip swollen and hard, with a band of hardened tissue extending from the left angle of the mouth outward for two inches; the face œdematous.

Incised the lower lip transversely from the median line to the angle on the line of junction of the skin and mucous membrane to the depth of one inch, and applied pure carbolic acid to the wound; also injected pure carbolic acid into the pustule; applied a poultice of flaxseed, tar, and tinct. iodine — three parts of meal, one part of tar, two dr. of tinct. iodine.

Morning of the 5th, inflammation around pustule less; lower lip more swollen, and presenting a gangrenous slough; left half of upper lip swollen and presenting the same appearance as lower lip twelve hours previous. Temperature 101, pulse 115, respiration 22; face more œdematous, and dark-red lines extending from the lips upwards and backwards to the zygoma and left orbit. I incised upper lip, and applied carbolic acid and poultice; injected carbolic acid into the tissues near the angle of the mouth; applied lint wet with sol. act. lead to the face. Evening of the 5th, temperature 102½, pulse 124, respiration 24; the œdema of the face has not extended beyond the limits in the morning; tissues of upper lip of darker color; lower lip sloughing; pustule and surrounding areola improving in color; slight discharge of pus from pustule.

Morning of the 6th. Passed a very restless night. Temperature 102, pulse 120, respiration 20. Tissues of lower and upper lip sloughing; removed with forceps and scissors a great portion of the slough of the lower lip; continued to apply carbolic acid. The œdema, and color of the face remained in much the same condition of previous day. Evening of the 6th, temperature 103, pulse 130, respiration 24. No perceptible change in the pustule, lips, or face since morning.

Morning of the 7th, temperature 102⅕, pulse 128, respiration 22; œdema of face diminished; pustule and lips discharging pus. Evening of the 7th, temperature 103⅗, pulse 135, respiration 26; has been chilly during the day, and is in a profuse sweat at six P. M.

Morning of the 8th, temperature 102⅖, pulse 126, respiration 22; sloughing of upper lip profuse. Evening, temperature 104, pulse 140, respiration 30.

Morning of the 9th, temperature 103, pulse 138, respiration 28; entire slough of lower lip removed, presenting a healthy granulating surface. Upper lip sloughing; removed from angle of mouth a large slough; face less swollen and less discoloration. Slightly delirious during the previous night. Evening, temperature 105, pulse 142, respiration 30.

Morning of the 10th, temperature 102, pulse 130, respiration 28. Night, temperature 103, pulse 130, respiration 34. Condition of face improved; slough removed from upper lip.

Morning of the 11th. Passed a restless night; had slight chill followed by a profuse perspiration; temperature 103⅕, pulse 140, respiration 28; tongue dry, and sordes on teeth; bowels loose; redness and œdema of face rapidly disappearing; the lips presenting healthy

granulating surfaces; swelling and fluctuations below the symphysis of lower jaw; punctured, and half ounce of pus evacuated. Evening, temperature 105⅕, pulse 130, respiration 30.

Morning of the 12th, temperature 102, pulse 130, respiration 28; profuse perspiration through the previous night. Evening, temperature 103⅖, pulse 140, respiration 28.

Morning of the 13th, temperature 100, pulse 106, respiration 24. Swelling with fluctuation over infra-orbital foramen. Punctured, and evacuated one ounce of pus. Evening, temperature 103, pulse 140, respiration 30.

Morning of the 14th, temperature 99, pulse 110, respiration 22. Profuse perspiration, alternating with chilliness during the previous night and day, and complains of pain and soreness of right leg. On examination found an area of dark-red color, one inch wide and two inches long, situated on the outside of the anterior border of the tibia, at the junction of the middle with the upper third of the bone. Introduced bistoury to the depth of one inch and a half, without reaching pus.

Morning of the 15th, temperature 100⅘, pulse 132, respiration 24; passed an uncomfortable night; had profuse perspiration; wounds of lips improving. Evening, temperature 104, pulse 140, respiration 32.

Morning of the 16th, temperature 103, pulse 140, respiration 30. Severe chill during the night, followed by severe lancinating pain in lower right pleura. The swelling in the leg continued, and a deeper incision, extending between the tibia and fibula, gave exit to three ounces of dark-colored pus. Evening, temperature 105, pulse 160, respiration 36.

Morning of the 17th, temperature 102⅗, pulse 128, respiration 30; had alternate chilliness and perspiration during the night. The acute pain in the side relieved, with a dull aching pain ensuing; slight cough on full inspiration. Percussion revealed dullness over the lower lobe of right lung. Evening, temperature 104⅗, pulse 140, respiration 36.

Morning of the 18th, temperature 104⅘, pulse 128, respiration 30; expectorates frothy mucus, tinged with blood; continues to have profuse perspiration several times a day, so that his clothing is continually wet.

Morning of the 19th, temperature 101, pulse 126, respiration 28. Expectoration of bloody sputa increased. Perspiration continuing. Abscess in leg discharging unhealthy dark-colored pus. Evening, temperature 103, pulse 132, respiration 32.

Morning of the 20th, temperature 101, pulse 124, respiration 28. Expectoration of a dark-brown color. Less dullness on percussion. Abscess still discharging pus of a lighter color. Evening, temperature 103⅖, pulse 132, respiration 30.

Morning of the 21st, temperature 100, pulse 120, respiration 22. Expectoration less and of lighter color. Urine examined; quantity thirty ounces daily, and slightly albuminous. Evening, temperature 102⅖, pulse 128, respiration 26.

Morning of the 22d, temperature 101, pulse 124, respiration 26. Expectoration less. Less dullness over lung. Evening, temperature 103, pulse 130, respiration 30. . . .

Morning of the 25th, temperature 99, pulse 120, respiration 22. More air entering right lung. Less cough and expectoration. Otherwise no improvement. Evening, temperature 102⅖, pulse 128, respiration 30. . . .

Morning of the 28th, temperature 99⅖, pulse 124, respiration 24. Less cough and expectoration, and profuse perspiration at intervals of four to six hours. Evening, temperature 103, pulse 132, respiration 30.

Morning of the 29th, temperature 99⅕, pulse 120, respiration 22. With the exception of temperature, the patient appears to be improving. Evening, temperature 103, pulse 130, respiration 24. . . .

On the night of November 1st he had a severe chill, after which the temperature rose to 106°, followed by severe pain in left thorax, which proved to be the beginning of another attack of pleuro-pneumonia, which passed through all the stages that I have just related in the attack on the right side, with temperature, pulse, and respiration during the course of the disease a counterpart of the first attack.

On the morning of the 10th of November, temperature 102⅕, pulse 130, respiration 28. Patient continued to improve from this date. A slight cough with expectoration of light-colored sputa continued until December 28th, with occasional attacks of perspiration; the temperature was taken until the 28th of December.

The characteristic symptoms of two of these cases were alike in several respects. The locations of the pustules were both on the right side of the face, and located at the same place. The intermediate integument between the pustules and lips was not affected by the disease in either case. The inflammation or extension of the disease appeared to be from the right side of the pustules along the integument covering the basilar portion of the inferior maxilla, to near the angle of the jaw, and then curving upwards over the face along the anterior border of the masseter muscle.

On the second night, or twenty-four hours after pustules were noticed, and twelve hours after red streaks or lines extended along the lower margin of jaw, and then the lower half of the lips became affected, and twelve hours after the upper lip became affected in both cases, and then the right half of the face, forehead, and scalp in the case of Mrs. R., and the face of Mr. P. became œdematous.

From the observation of these cases it appears that the disease may be divided into four periods or stages: first, the period of incubation, which may be from a few hours to fourteen days, with no prodromes; second period, the formation of pimple, papule, and pustule, lasting from twelve to twenty-four hours; third stage, the extension of the œdema and inflammation, occurring twelve hours after the formation of the pustule; fourth, the stage of gangrene, occurring in from twelve to twenty-four hours later. The disease extended by the poison being carried by the superficial lymphatics only. I am led to this conclusion from the fact that in three of the cases the disease extended from the right side of the pustule, curving upwards over the face; and not until the lines of inflammation or œdema had reached above the line of Wharton's duct did the lips show evidence of disease. Again, the disease in all of the cases was confined to one side of the face, head, neck, and scalp, and did not pass over the median line of the face or the median line of neck posteriorly. The treatment of all of the cases was similar in most respects.

In the second case, Mrs. R., the treatment was free crucial incision of the pustule; injection of pure carbolic acid into the pustule; quinia in large doses, car-

bonate ammonia, tinct. ferri chloridi, and whiskey punch internally; free incision of the lips, and injection of pure carbolic acid, with local application of alcohol to the face.

The third case, Mrs. H., I did not treat.

The fourth case, Mr. P., was under my care from the time the papule was formed; free crucial incision was practiced at once, and pure carbolic acid was injected into the tissues around the pustule; he was put upon quinia, four grains every three hours; tinct. ferri chloridi, thirty drops every three hours, and whiskey punch. As soon as the lips showed indications of the disease free incisions were made, and carbolic acid was injected into them, and also into the angle of the mouth; lead-water and laudanum applied to the face, which appeared to act better than alcohol; used as a poultice, linseed meal, tar, and tinct. iodine; when indications of septic poisoning occurred he was given aqua chlorinata in drachm doses every four hours, which was continued until December 20th. The attacks of pleuro-pneumonia were treated by counter-irritation of the thorax, and quinia, carbonate of ammonia, with the addition of morphine.

The immediate cause of death in the three cases was, I believe, by thrombus of the cerebral veins or sinuses, the intimate connection of the pterygoid plexus with the facial vein, also the connection of the ophthalmic vein with the angular vein, a continuation of the facial, and the vein passing from the internal surface of the nasal cavities up through the foramen cæcum to the longitudinal sinus, the pterygoid veins and ophthalmic veins emptying into the cavernous sinus. Mr. H., Mr. R., and Mrs. H. became rapidly comatose, had stertorous breathing, and complete paralysis before death, all symptoms of compression of the brain. Billroth reports a case of death from malignant pustule, in which the post-mortem examination showed thrombus of the temporal veins, which was traced to the ophthalmic, and through the ophthalmic to the brain. Bartholow gives as the most frequent cause of sudden death in erysipelas of the face and head thrombus of either the longitudinal, cavernous, or lateral sinus.

"In cases of malignant pustules rigor mortis usually sets in early and passes off quickly; the body is often cyanosed; the face may be swollen; petechiæ on chest and abdomen are not uncommon; decomposition usually sets in early. The blood is generally dark, lake, and tarry, and in the heart often uncoagulated; the subcutaneous cellular tissue of the parts affected is hæmorrhagic, and hæmorrhagic patches radiate into the surrounding tissues, which are extensively infiltrated with a semi-gelatinous blood-stained fluid. In the pulmonary and gastro-intestinal form other anatomical characters are observed.

"The most important point in the microscopic anatomy is the presence of the bacillus anthracis in the blood and tissues, either diffused or forming masses in the lymphatics and vessels; the bacillus anthracis, as seen in the blood, consists of a motionless, short, apparently homogeneous rod or filament, rarely less than $\frac{1}{2500}$ of an inch long, either straight, curved, or bent at an acute angle. The usual mode of multiplication in the blood is by transverse fission. The bacillus anthracis requires for its growth the presence of a nitrogenized pabulum and a supply of oxygen; its vitality is destroyed by a temperature of 60° C.; when dry the rods themselves can be preserved but a short time, while the spores retain their vitality for years and are unaffected by ordinary changes of climate or temperature."[1]

The bacillus anthracis is a bacterium, first discovered by Pollender in 1849. All parts of the bodies of animals dying of the disease are actively poisonous, and may convey the disease by direct or mediate contagion; it may arise from eating the flesh, though the poison is said to be destroyed by cooking; contagion may also be conveyed by butter or milk. The bites of flies may also convey the poison. Contagion occurs in those who have to deal with the wool or hair of animals which have died of the disease, such as wool packers and sorters, horse-hair cleaners, farriers, tanners. The poison may enter the system either by local inoculation or by inhalation of the dust containing it. The diffusion of the poison by water and its distribution by means of wool-waste and bone-dust, used as manure, especially deserve notice, as capable of spreading the contagion.

"In the earlier stages diagnosis is very difficult, except in persons who are known to be exposed to contagion. At a later stage the characteristic features of the pustule render the recognition comparatively easy, and microscopical examination of the serum contained in the vesicles shows the presence of the bacillus anthracis. Inoculation experiments on guinea-pigs or mice will, if successful, readily decide it, but no absolute conclusion can be drawn from failure to inoculate.

"The prognosis is extremely unfavorable."

RETAINED PLACENTA.[2]

BY O. W. DOE, M. D.

IN 1861 Mr. Priestley communicated to the Obstetrical Society of London a paper on the Treatment of Cases of Abortion with Retained Placenta, urging manual interference if the placenta be retained longer than six hours, and earlier should hæmorrhage occur to any unusual extent. In this opinion he was seconded by such men as Dr. Tanner, Dr. Hall Davis, Dr. Tyler Smith, and others.

Since that time this question has been very much discussed, and recently as great a diversity of opinion regarding the treatment to be followed has existed in those cases where the placenta and membranes are not expelled with the fœtus as has lately been shown in the New York Academy of Medicine regarding the nature and cause of puerperal fever.

Drs. Mundé and Alloway advise either manual or instrumental removal of the secundines immediately after the expulsion of the fœtus in every case where the cervical canal is sufficiently patulous to permit the introduction of the finger, curette, or placental forceps, while Dr. Sweringen, with others prominent in the Indiana State Medical Society, prefer to leave its expulsion to the forces of nature, excepting in cases where some emergency demands its immediate removal.

Two years ago Dr. Warren, of Portland, read a paper upon this subject, in which he urged immediate removal of the placenta and membranes, as recommended by Dr. Mundé, and produced, in substantiation of this method of treatment, letters from Drs. T. G. Thomas, Lusk, Mary Putnam Jacobi, and others

[1] Greenfield.

[2] Read before the Boston Society for Medical Improvement, April 28, 1884.